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COPY FOR YOUR INFORMATION

02-16-000-7567-RA

April 28, 2016

Ms. Judith A. Enck, Regional Administrator
USEPA Region 2
Main Regional Office
290 Broadway
New York, NY 10007-1866

Re: Request for Approval of TSCA Self-Implementing Clean-up Plan of PCBs
Hangar 14
Newark Liberty International Airport
Newark, Essex County, New Jersey

Ms. Enck,

Enclosed please find the *Request for Approval of TSCA Self-Implementing Clean-up Plan of PCBs Hangar 14* for the above referenced site. This Plan supersedes the *TSCA Self-Implementing Clean-up Plan of PCBs* submitted to the EPA on February 23, 2016. The request was prepared by TRC Engineers, Inc. (TRC) on behalf of the Port Authority of New York and New Jersey.

If you have any questions or require additional information, please contact the undersigned at (609) 238-5886

Sincerely,
TRC Engineers, Inc.

David J. Carlson
Project Director

Enclosure

cc: B. Walch, PANYNJ
M. Cahill, PANYNJ
D. Glass, TRC
T. Casella, Essex County Director of Environmental Affairs

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CORRESPONDENCE CONTROL
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REQUEST FOR APPROVAL OF TSCA SELF-IMPLEMENTING CLEAN-UP OF PCBs

Hangar 14

Site Location:

Hangar 14
Newark Liberty International Airport

Newark, Essex County, NJ

Prepared for:

The Port Authority of NY & NJ
150 Greenwich Street, 20th Floor
New York, New York 10007
EPA Region II

Prepared by:

TRC Engineers, Inc.

April 2016

TRC
Results you can rely on

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1.0 INTRODUCTION

This Request for Approval of a Self-Implementing Plan (SIP) for Cleanup of Polychlorinated Biphenyls (PCBs) (Plan) has been prepared in accordance with the Toxic Substances Control Act (TSCA) on behalf of The Port Authority of New York & New Jersey (PANYNJ). This Plan supersedes the SIP submitted to the EPA on February 23, 2016, and describes the engineering and institutional controls proposed to address PCB impacted soils at Hangar 14 at Newark Liberty International Airport in Newark, NJ. The PANYNJ plans to construct an environmental barrier (cap) and establish an institutional control to prevent direct contact with soil, and is providing notification in accordance with 40 CFR 761.61.

The Hangar 14 Facility (Site) is located at Newark Liberty International Airport (EWR), in Newark, New Jersey (**Figure 1**). The Site soil contains concentrations of PCBs and polycyclic aromatic hydrocarbons (PAHs) exceeding the New Jersey Department of Environmental Protection (NJDEP) Soil Remediation Standard (SRS). A Deed Notice, as an institutional control, will be established to limit the Site to High Occupancy non-residential use with implementation of an engineering control (cap). Based on the aerial extent of PCB concentrations, portions of the capped area will be additionally restricted to Low Occupancy Use. The Hangar 14 Facility building has been demolished. The former area where the Hangar 14 Facility building existed will be redeveloped and paved with asphalt concrete for overnight aircraft parking. The source of PCBs in shallow soil is hydraulic fluid that discharged to a drainage system and associated former oil/water separator. Collectively the drainage system and oil/water separator comprise the former Oil Water Separator System (OWSS). The proposed Deed Notice area and soils impacted with PCBs will not be disturbed during construction.

Two (2) areas of concern (AOCs) with PCB contamination were initially identified by the PANYNJ. AOC-1: Former Oil Water Separator Tank (Former OWS Tank) includes the area around the former oil water separator (OWS) and an associated overflow capture

tank, a 550-gallon steel underground storage tank (UST). AOC-2: Former Floor Drainage Area includes the floor drainage system located beneath the concrete floor of Former Hangar 14. Based on the requirements of the current NJDEP regulatory regime ground water has been designated as AOC-3. The locations of AOC-1 and AOC-2 are illustrated on **Figure 2**, Site Plan.

2.0 SITE DESCRIPTION AND ENVIRONMENTAL SETTING

2.1 Site Description and Background

Hangar 14 is located in the northern part of Newark Liberty International Airport in the City of Newark, Essex County, New Jersey. The airport property is Block 50594, Lot 1 on the City of Newark tax maps, and is primarily comprised of paved surfaces that include terminals, runways, roadways and parking lots, as well as buildings and support structures. The airport is surrounded by Routes 1 & 9 to the north and west, Interstate 95 (the New Jersey Turnpike) to the east, and Interchange 13A of the New Jersey Turnpike to the south and southwest. The City of Elizabeth borders the airport to the southwest, to the east and southeast are Port Newark and Port Elizabeth, and the City of Newark is north and west of the airport. The coordinates for the center of Hangar 14 are North 681762.62 and East 581654.93, as approximated from the United States Geological Survey (USGS), Elizabeth, 7.5-minute topographic quadrangle.

Hangar 14 was formerly operated by United Airlines (United) which utilized the hangar to maintain aircraft and ground services equipment from its construction until March 2006. The Site is currently owned by the PANYNJ. The Site is surrounded by the Southwest cargo facility to the east, Brewster Road and Route 9 to the north, Brewster Road and several highway interconnections to the west, and an Airport taxiway to the south. The former OWS utilized by Hangar 14 was located approximately 90 feet from the northeast corner and approximately 25 feet from the eastern wall of Hangar 14.

2.2 Site Geology and Hydrogeology

The Site is located in the Piedmont physiographic province in New Jersey, or the Newark Basin. The underlying bedrock geology of the Passaic formation consists of mudstone, siltstone and shale. The overburden material encountered on-Site is fill material that was placed during the construction of the Airport. Historic reports indicate that the fill layer varies from absent to 53 feet in thickness across the airport, with an average thickness of approximately 10 feet, and consists of medium to fine sands, crushed glass, cinder material, wood fragments, gravel and silt.

Surface elevations at the Site are approximately 9 to 10 feet above mean sea level and topography is relatively flat. Surficial drainage is directed toward storm drains located along the streets throughout the airport. A peripheral drainage ditch surrounds the property occupied by the airport and is located approximately 0.25 miles west of the Site. There are no surface water bodies or wetlands on or near the Site.

3.0 PREVIOUS ENVIRONMENTAL INVESTIGATIONS

The former OWS and associated 550-gallon UST in AOC-1 were decommissioned and removed in April of 2004. Information relating to the OWS removal activities was provided in a PANYNJ memorandum, dated June 10, 2004 and the *PCB Characterization Report for Newark Liberty International Airport Hangar 14*, dated March 30, 2005 prepared by Apex Environmental (Apex). Removal operations included the excavation and removal of the concrete OWS and steel UST after removal by Vactor truck of sludge and wastewater from the OWS. The waste material in the Vactor truck was sampled and found to contain PCBs at concentrations exceeding 50 parts per million (ppm). The PANYNJ was not aware of the 550-gallon UST until the OWS was excavated. The 550-gallon UST was removed in accordance with NJDEP requirements.

Upon discovery of the PCBs within the OWS sludge, United Airlines voluntarily initiated follow-up investigations to determine the source and extent of PCBs at the Site. (As described above, the two AOCs initially recognized by the PANYNJ were AOC-1: Former Oil Water Separator Tank (Former OWS Tank) and AOC-2: Former Floor Drainage Area.) The following sections summarize the investigations performed in connection with Hangar 14. It should be noted that analytical results presented in this document are compared to NJDEP Soil Remediation Standards (SRS) that were made effective after June 2, 2008, because a Remedial Action Work Plan establishing use of the pre-June 2, 2008 Soil Cleanup Criteria was not submitted to the NJDEP prior to December 2, 2008.

3.1 Summary of Initial Investigations Identifying Source of PCBs

Initial PCB screening conducted by United Airlines in June and July 2004 identified PCBs in sludge and wastewater in the floor drainage system, as well as in the hydraulic fluid used to operate the door system at Hangar 14. Screening wipe samples did not identify any AOCs relative to surface contamination or potential worker exposure. Based on the results of the screening study, review of operations, and discussions with United, it was determined that previously used hydraulic fluid was the likely source of PCB contamination at the hangar. It

was also determined that the floor drainage system warranted further investigation, which Apex performed in August, September, and October 2004.

Apex conducted floor drain integrity tests as well as sludge, wastewater, surface wipe, and concrete sampling. Apex reported that PCB-impacted sludge had accumulated in the floor drains and associated catch basins. PCBs were not detected in the wipe samples. Concrete core samples indicated the presence of PCBs within the concrete floor at the hangar. The *PCB Characterization Report* documenting work performed since the 2004 detection of PCBs at the OWSS was provided to United States Environmental Protection Agency (USEPA) and NJDEP in April 2005. United discontinued all Site operations in March 2006.

In March 2006, an Interim Remedial Measure (IRM) was completed by United to remove residual sludge from the drains, catch basins, and drain manifolds inside the hangar. Additionally, United replaced the oil in the hydraulic system. Post-oil change results indicated that the hydraulic system oil did not contain PCBs at levels exceeding 50 parts per million (ppm). Upon the completion of the IRM, United reported that all readily accessible sludge from the drains and lines had been removed and no residual PCBs above 50 ppm remained in the hydraulic system, therefore eliminating the suspected potential source of PCB impacts to soil.

3.2 Summary of Investigations Identifying Subsurface PCB Impacts

The following paragraphs summarize the subsurface investigations completed at the Site. It is an overview to present the temporal progression of remediation and remedial investigations of soil and ground water at the site. Sections 3.2.1 through 3.2.3 provide further detail on each event.

The Apex 2004 *PCB Characterization Report* concluded that PCBs were present in sludge within the floor drainage system. The *PCB Characterization Report* also indicated that two (2) of the four (4) floor drainage lines located inside of Hangar 14 failed integrity tests,

suggesting that two (2) drain lines could have released PCB contaminated sludge material. The two (2) drain lines which failed integrity tests were Floor Drain Line 1 on the northeast side of the hangar, and Floor Drain Line 4 on the southwest side of the hangar, as shown on **Figure 2**. Apex, on behalf of United, performed a subsurface investigation to evaluate soil and ground water quality at the Site.

In April and May 2005, twenty (20) soil borings were installed and sampled throughout AOC-2: Former Floor Drainage Area. Also during May 2005, nine (9) borings were installed and sampled near AOC-1: Former OWS Tank. During October and November 2005, nine (9) additional borings were installed and sampled near AOC-1: Former OWS Tank to further delineate PCBs in soil. In April 2006, five (5) additional soil borings were installed and sampled throughout AOC-1. In July 2008, nine (9) additional borings were installed and sampled in AOC-1, and four (4) additional borings targeting junctions in the AOC-2 floor drainage system were installed and sampled. All soil samples were analyzed for PCBs and thirteen (13) soil samples were analyzed for volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs).

Four (4) ground water samples were collected from existing monitoring wells surrounding Hangar 14 in May 2005 and analyzed for PCBs, VOCs and SVOCs. These wells were not appropriately located to assess the Site and after establishing that no PCBs were present in the wells, the wells were no longer sampled and appropriately located wells were subsequently installed. In June 2005, one (1) additional monitoring well (designated MW-1) was installed and ground water samples were collected and analyzed for USEPA Priority Pollutants plus 40 (PP+40) and Total Petroleum Hydrocarbons (TPHC). In June 2008, three (3) additional monitoring wells (designated OWS-1, OWS-2, and OWS-3) were installed. During July 2008 and February 2009, ground water samples were collected from MW-1 and the three (3) OWS wells and analyzed for PCBs.

3.2.1 AOC – 1: Former OWS Tank Area

3.2.1.1 AOC-1: Initial Soil Investigation - 2005

Apex conducted a remedial investigation of soil in AOC-1 during October and November 2005. This included the installation of nine (9) borings in AOC-1 (designated SB-1 through SB-9). Soil samples collected from each boring at 2.5 to 3 feet below ground surface (bgs) and 7.5 to 8 feet bgs were submitted for laboratory analysis. Soil at boring location SB-3 contained PCBs at levels above the NJDEP Residential Direct Contact SRS (RDCSRS) and NJDEP Non-Residential Direct Contact SRS (NRDCSRS). SB-3(2.5-3.0) contained total PCBs at 2.9 mg/kg and SB-3D(7.5-8.0) contained total PCBs at 7.9 mg/kg. In all other samples analytical results were either non-detect (ND - not detected above the laboratory detection limit) or below the NJDEP SRS.

3.2.1.2 AOC-1: Additional Soil Investigation - 2006

In 2006 the PANYNJ retained Hatch Mott MacDonald (HMM) to continue the remedial investigation of AOC-1. Between April 26th and April 28th, 2006 five (5) soil borings designated SB-1* through SB-5* were installed. Soil samples were collected from 'original fill' material (below the backfill placed during the April 2004 removal of the OWS). Total PCBs were detected above the RDCSRS in SB-3*(13.5-14.0) at 0.28 mg/kg and above the RDCSRS and NRDCSRS in SB-1*(12.5-13.0) at 6.3 mg/kg, in SB-1DUP*(12.5-13.0) at 5.1 mg/kg, in SB-2*(10.5-11.0) at 30 mg/kg, and in SB-4*(9.5-10.0) at 16.5 mg/kg.

The soil sampling results also indicated concentrations of five (5) PAHs above NJDEP SRS in deeper fill at the Site. The five PAHs detected above SRS were benzo(a)anthracene (BAA), benzo(a)pyrene (BAP), benzo(b)fluoranthene (BBF), dibenzo(a,h)anthracene, and indeno(1,2,3-cd)pyrene. BAA was detected above the RDCSRS in sample SB-1DUP*(12.5-13.0) at 0.61 mg/kg and SB-2*(10.5-11.0) at 1.8 mg/kg. BAP was detected above RDCSRS and NRDSRSR in SB-1DUP*(12.5-13.0) at 0.59 mg/kg, SB-2*(10.5-11.0) at 1.3 mg/kg, SB-3*(13.5-14.0) at 0.71 mg/kg, SB-4*(9.5-10.0) at 0.49 mg/kg, and SB-5*(9.5-10.0) at 0.31 mg/kg. BBF was reported above the RDCSRS in SB-1DUP*(12.5-13.0) at 0.97 mg/kg, SB-2*(10.5-11.0) at 1.8 mg/kg, SB-3*(13.5-14.0) at 0.99 mg/kg, and SB-4*(9.5-10.0) at 0.63

mg/kg. Dibenzo(a,h)anthracene was reported above the RDCSRS and NRDCSRS in SB-2*(10.5-11.0) at 0.21 mg/kg. Indeno(1,2,3-cd)pyrene was reported above the RDCSRS at 0.7 mg/kg in SB-2*(10.5-11.0) . Total Petroleum Hydrocarbons (TPH) were detected in SB-4*(9.5-10.0) at 13,000 mg/kg, which is above the TPH Criterion of 10,000 mg/kg.

3.2.1.3 AOC-1: Supplemental Soil Investigation - 2008

In July of 2008, nine (9) additional soil borings (D-1 through D-9) were installed in AOC-1 to confirm previous findings and complete the delineation of PCBs in soil. Soil samples from two depth intervals were submitted for analysis, 4.5 feet to 5.0 feet bgs and 14.5 feet to 15.0 feet bgs, to refine and complete horizontal delineation. Only two of the deeper soil samples contained PCBs in excess of NJDEP SRS.

Boring D-1 was installed within the footprint of the former UST excavation to a depth of 16 feet bgs to vertically delineate elevated PCBs detected in HMM's earlier borings SB-1*, SB-2*, and SB-4*. As stated above, November 2005 samples SB-1*(12.5-13.0), SB-2*(10.5-11.0) and SB-4*(9.5-10.0) contained total PCB concentrations of 6.3 mg/kg, 30 mg/kg and 16.5 mg/kg, respectively. In sample D-1(14.5-15.0) total PCBs were detected at 2.5 mg/kg, above the RDCSRS and NRDSRSR of 0.2 mg/kg and 1.0 mg/kg, respectively. Soil boring D-2 was installed approximately 15 feet northeast of D-1 to vertically delineate elevated PCBs in AOC-1. D-2(14.5-15.0) contained 0.23 mg/kg PCBs, which is above the RDCSRS of 0.2 mg/kg. HMM reported that the sample was collected at an interval six inches above an organic peat, or meadow mat layer, which acts as a confining layer to downward migration.

During the July 2008 sampling event, two (2) soil borings, D-3 and D-9, were installed adjacent to 2005 soil borings SB-3 and S-18. SB-3(7.5-8.0) contained total PCBS at 7.9 mg/kg and S-18(9.5-10.0) contained total PCBs at 33.0 mg/kg. July 2008 samples D-3(4.5-5.0), D-3(14.5-15.0), and D-9(14.5-15.0) were ND for PCBs. Therefore, samples from boring D-3 horizontally and vertically delineated SB-3(7.5-8.0). Additionally, boring D-9 vertically delineated S-18(9.5-10.0). Five additional borings (D4 through D8) were placed strategically around the former OWSS to horizontally delineate PCB contamination. In

particular, boring D-2 to the east, D-5 to the south, D-8 to the west, and D-9 to the north were installed. The results of analyses for PCBs of all samples collected from these locations ranged from ND to 0.23 mg/kg, indicating further horizontal delineation of PCBs is not warranted at AOC-1.

Figure 3 illustrates the soil boring locations. A summary of the soil analytical results is provided in **Table 1**.

3.2.1.4 AOC-1: Conclusion of Remedial Investigations

As illustrated on Figure 3, the data from the boring programs discussed above has demonstrated horizontal delineation to the NJDEP SRS for PCBs in shallow soil and the deeper historic fill.

3.2.2 AOC–2: Floor Drain Area

3.2.2.1 AOC–2 Boring Program - 2005

During April 2005 Apex advanced twenty (20) borings in and around AOC-2, designated S-1 through S-20. The primary foci of these borings were two (2) drainage manifolds that exhibited potential integrity breaches. Two (2) soil samples from each boring were submitted for laboratory analysis; one at approximately 3 feet bgs, to evaluate shallow subsurface impacts, and one at approximately 9 to 10 feet bgs, to investigate potential deeper impacts and determine if PCBs were present in historic fill material.

The results of the investigation indicated that in shallow soils, PCBs were either ND, or detected at levels well below the TSCA action level of 50 ppm. Sample S-18(2.5-3.0) contained 3.1 mg/kg of total PCBs (above the RDCSRS and the NRDCSRS for total PCBs). However, it should be noted that the boring S-18 was drilled in the vicinity of the former OWS and the impact is attributable to AOC-1: Former OWS Tank. No other shallow soil sample in AOC-2 contained detectable levels of PCBs.

PCBs were detected in two deeper soil samples, S-9D(9.5-10.0) and S-18D(9.5-10.0). In S-9D(9.5-10.0) PCBs were detected at a concentration of 0.86 mg/kg, which is above the RDCSRS of 0.2 mg/kg. Sample S-18D(9.5-10.0) was collected from the historic fill and contained 33 mg/kg of PCBs, above the RDCSRS and the NRDCSRS for total PCBs. It should be noted that S-18D(9.5-10.0) was collected in the vicinity of the former OWS and the impact is attributable to AOC-1: Former OWS Tank. PCBs were not detected in all other samples from both depths.

3.2.2.2 AOC–2: Supplemental Boring Program – 2008

As mentioned above, the Apex 2004 *PCB Characterization Report* indicated that two (2) of the four (4) floor drain lines in Hangar 14 failed integrity tests for tightness. This suggested that the two (2) drain lines could have potentially released PCB contaminated sludge material. The boring program described in Section 3.2.2.1 above was conducted to generally assess the conditions in the floor drainage area. As reported in the March 2009 *Supplemental Remedial Investigation Report,* the PANYNJ performed a further investigation during July 2008 that targeted specific joints in the floor drainage system.

Four (4) soil borings were installed, one (1) soil boring was placed near the north end of each drain line (FD-1A and FD-4A), and one (1) boring was placed near the south end of the drain lines (FD-4A and FD-4B). Three (3) samples from each boring, collected at 2.5-3.0, 9.5-10.0, and 14.5-15.0 feet bgs, were submitted for laboratory analysis. None of the FD-series of samples contained detectable concentrations of PCBs. This evidence confirmed previous observations (Section 3.2.2.1) showing no shallow samples contained PCBs specifically attributable to AOC-2, again indicating that PCBs likely did not leak into the subsurface from the floor drain lines.

Figure 3 illustrates the soil boring locations. A summary of the soil analytical results is provided in **Table 1**.

3.2.2.3 AOC-2: Conclusions from Remedial Investigation

During the investigation of AOC-2, only one (1) exceedance of NJDEP SRS for PCBs in shallow soil was detected, in sample S-18(2.5-3.0). This exceedance was within 10-feet of the OWS and is therefore likely attributable to the OWS. Other than S-18(9.5-10.0) that is attributable to AOC-1, the only exceedance of NJDEP SRS for PCBs in a deep sample was S-9D(9.5-10.0). PCBs were not detected in the shallower sample from the boring, S-9(2.5-3.0), indicating the drainage system was likely not the source. In addition, the PCBs in S-9D(9.5-10.0) are within the deeper historic fill material. Based on these lines of evidence, the PCB incidence in SB-9D(9.5-10.0) is clearly not the result of the floor drainage system.

3.2.3 AOC – 3: Ground Water

Analytical results from the May 2005, June 2008, and February 2009 ground water sampling events did not indicate the presence of any PCBs in excess of the NJDEP Ground Water Quality Criteria (GWQC). Therefore, further investigation or remediation is not required. The results and sampling locations establishing this conclusion are summarized in the *Supplemental Remedial Investigation Report* dated March 2009. The NJDEP agreed with this conclusion of the report, and in a letter dated March 27, 2009 agreed no further investigation of ground water is required. The *Supplemental Remedial Investigation Report* dated March 2009 is included in **Appendix A**. The March 27, 2009 NJDEP letter is included in **Appendix B**.

4.0 NATURE AND EXTENT OF PCBS

This section summarizes the soil impacted by PCBs and its extent as required by 40 CFR §761.61(a)(3)(i)(C).

Soils are PCB Remediation Waste as defined in 40 CFR §761.61(a)(4)(i).

The oil/water separator and UST formerly in AOC-1 and the concrete slab and floor drainage pipes formerly in AOC-2 have been removed and properly disposed in accordance with applicable regulations. It should be noted that the building materials that formerly comprised Hangar 14 were characterized by the Port Authority as reported in the March 30, 2005 *PCB Characterization Report, Hangar 14, Newark Liberty International Airport* that was previously submitted to the USEPA and NJDEP, and the March 10, 2014 *Concrete Sampling Results Report, Newark Liberty International Airport – Hangar 14*. The only building material that contained PCBs in excess of the TSCA 50 mg/kg limit for classification as PCB Remediation Waste was caulking, which was removed and disposed of prior to building demolition. Disposal and recycling of the remaining building materials has been conducted in accordance to NJDEP regulations. Documentation for disposal of the caulking is provided in **Appendix C**.

The formal (recorded by Deed Notice) engineering control cap at the Site will cover approximately 44,500 ft^2. This cap will cover the fully delineated, impacted area of AOC-1: Former OWS Tank and the entire floor drainage system area within AOC-2: Former Floor Drainage Area. A portion of the deed notice area, approximately 2,025 ft^2 where soils contain greater than 10 mg/kg PCBs, will be designated as restricted to Low Occupancy Use as defined at 40 CFR § 761.3. This area has been fully delineated as discussed in Section 3.2.1 and shown on **Figure 4**. The remaining 42,475 ft^2 of the Deed Notice area surrounding the Low Occupancy Use area will be designated for High Occupancy Use as defined at 40 CFR § 761.3. Soils in the High Occupancy Use area contain less than 10 mg/kg PCBs. The engineering control cap, Low Occupancy Use, and High Occupancy Use deed notice areas are shown on **Figure 3** and **Figure 4**. It

should be noted that the cap is part of construction for the Overnight Aircraft Parking Area that, as shown on **Figure 4**, will cover a much larger area than the Deed Notice.

5.0 REMEDIATION PROCEDURES

The goal of this remediation effort is to protect public and workplace health and safety, and the environment. PCB Remediation Waste will be controlled utilizing an engineering control to limit the potential for exposure to the PCB contaminated soils remaining on-Site, by the installation of a cap. The engineering control cap will be documented by means of a Deed Notice to be filed with the County of Essex, New Jersey, and a Soil Remedial Action Permit to be obtained from the NJDEP Site Remediation Program.

5.1 Schedule

The remediation is planned to begin in April 2016 and will continue to completion, estimated to be June 2016.

5.2 Safety and Monitoring Requirements

The remediation project will be performed as described below. The shallowest soil sample with PCBs above the NJDEP NRDCSRS was collected at 2.5-3.0 feet bgs. There will be no disturbance of PCB containing soils in the Site area, and, therefore, direct contact, or inhalation exposure to PCB contaminated soils will not be a concern during the installation of the cap.

5.3 Engineering Control Descriptions

The PANYNJ will implement an engineering control to minimize potential for human exposure, infiltration of water, and erosion of the PCB Remediation Waste remaining at the Site. The engineering control will consist of eight (8) inches of asphalt, specifically an impermeable asphalt concrete layer that will measure a minimum of 4 inches thick above 4 inches of plant mix macadam, an engineered asphalt used for airplane ground traffic areas at the EWR facility. Beneath this cap will be 18 inches of dense graded aggregate base. This construction exceeds the cap specifications listed in Title 40 Code of Federal Regulations 761.61 – PCB Remediation Waste under section 761.61(a)(7). Additionally,

because Newark International Airport is a federal elevated security area, the Site is surrounded by a security fence to prevent unauthorized access. **Figure 4** shows the location of the engineering control and **Figure 5** illustrates the construction details of the engineering control. Included in **Appendix D** is a copy of the Asphalt Concrete Paving Section (Section 02553) of the Construction Specifications for the Overnight Aircraft Parking Area. Please refer to the table on page 29 of the specifications that defines the compositions of both asphaltic concrete and of plant mix macadam.

5.4 Inspections

Monitoring of the engineering control will consist of an annual inspection to include an evaluation of the cap. The results of the annual inspections, maintenance, and any disturbance to the control will be documented in a log book. The cap will be maintained in perpetuity. Should any breaches of the integrity of the cap be discovered, repairs will be completed within 72 hours. The aforementioned NJDEP Soil Remediation Permit will require submittal of a Biennial Certification confirming the engineering control remains effective. Additionally, based on the nature of the airport, the security fence surrounding the area will be constantly maintained.

5.5 Deed Notice

The PANYNJ, as legal property owner, will record a Deed Notice for the Site after completion of PCB remedial activities (construction of a cap). The Deed Notice will follow the TSCA requirements outlined in 40 CFR 761.61(a)(8), and will inform any potential future purchaser of the Site of:

- The locations of remaining subsurface PCB Remediation Waste;
- The location of the area which is restricted to uses defined as low occupancy per 40 CFR § 761.3;
- The sampling, monitoring and maintenance requirements related to residual PCBs at the Site; and
- The operating procedures required for any intrusive activities through and beneath the asphalt concrete cap at the Site.

Following recording of the Deed Notice, a copy, along with certification that the Deed Notice has been recorded with the registry of deeds, will be provided to the USEPA.

5.6 Notification and Certification

The remedial measures described within this Request will be initiated after receiving written approval of the plan from the USEPA or, after 30 days following the submittal of this plan to the USEPA, if comments are not received from the USEPA.

In Section 7.0, in accordance with 40 CFR 761.61(a)(3), is a written certification from the PANYNJ identifying the location of all reports presenting sample collection and analysis procedures used to assess or characterize the PCB contamination in support of this Self-Implementing PCB Clean-up Request. The reports are available for USEPA inspection.

6.0 DOCUMENTATION

Documentation of the field activities will be performed on a daily basis by the contractor and a field inspector during the performance of the remediation and will be summarized at the conclusion of the remediation activities in a Remedial Action Report (RAR).

6.1 Field Notes

The field inspector will maintain a daily log of on-Site activities. That log will include and document the following:

- Daily health and safety meetings
- Personnel and equipment on-site
- Field procedures and observations
- Remediation progress and extents
- Cap specifications
- Telephone or other instructions
- Equipment decontamination

6.2 Photographs

Photographs will be taken of representative activities, such as construction of the cap. The final extents of the cap will also be photographed. Copies of selected photographs will be included in the RAR.

6.3 Report

The RAR will be prepared upon completion of the cap installation. The RAR will include the following.

- Site description
- Historic investigation activities
- A description of field procedures
- Cap construction specifications
- A photographic record of the cap installation

6.4 Recordkeeping

Records and documents required by 40 CFR Part 761 will be prepared and maintained by the PANYNJ. The records will be maintained in a centralized location for a minimum of three (3) years, and will be available for inspection by representatives of the USEPA, if required.

7.0 OWNER CERTIFICATION

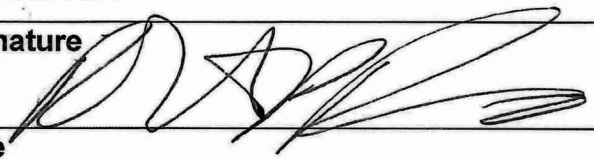
This Section of the Request provides the certification required by 40 CFR 761.61(a)(3)(i)(E).

I certify the Self-Implementing PCB Clean-up Plan proposed in this document will meet the following requirements:

All sampling plans, sample collection procedures, sample preparation procedures, extraction procedures, and instrumental/chemical analysis procedures used to assess or characterize the PCB contamination at the cleanup site are or will be on file at the following location and are available for USEPA inspection:

Applicant/Authorized Owner:

Name:	The Port Authority of New York and New Jersey
Representative:	Robert Pruno, PE
Title:	Chief Environmental Engineer
Address:	4 World Trade Center 150 Greenwich Street, 20th Floor New York, NY 10007
Telephone:	(212) 435-6116
Email:	rpruno@panynj.gov

Name (Printed) Robert Pruno
Signature 
Title Chief Environmental Engineer
Date 4/26/16

TABLES

			Sample Identification	S-1	S-1D	S-2	S-2D	S-3
			Laboratory Number	1604-7	1604-8	1604-1	1604-2	1604-
			Sample Date	5/2/2005	5/2/2005	5/2/2005	5/2/2005	5/2/200
			Sample Depth (feet bgs)	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PCBs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Result**
Aroclor-1016	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1221	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1232	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1242	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1248	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1254	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1260	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1262	NC	NC	NC	NA	NA	NA	NA	NA
Aroclor-1268	NC	NC	NC	NA	NA	NA	NA	NA
Total PCBs	0.2	1	0.2	ND	ND	ND	ND	ND
VOCs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Result**
Total Xylenes	12,000	170,000	19	NA	NA	NA	NA	NA
Trichloroethene	7	20	0.01	NA	NA	NA	NA	NA
Isopropylbenzene	NC	NC	NC	NA	NA	NA	NA	NA
1 ,3,5-Trimethylbenzene	NC	NC	NC	NA	NA	NA	NA	NA
sec-Butylbenzene	NC	NC	NC	NA	NA	NA	NA	NA
n-Butylbenzene	NC	NC	NC	NA	NA	NA	NA	NA
Total VOCs	NC	NC	NC	NA	NA	NA	NA	NA
SVOCs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Result**
2-Methylnapthalene	230	2,400	8	NA	NA	NA	NA	NA
4-Methylphenol	31	340	NC	NA	NA	NA	NA	NA
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Acenaphthene	3,400	37,000	110	NA	NA	NA	NA	NA
Acenaphthylene	NC	300,000	NC	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Phenanthrene	NC	300,000	NC	NA	NA	NA	NA	NA
Anthracene	17,000	30,000	2400	NA	NA	NA	NA	NA
Di-n-butyl phthalate	6,100	68,000	760	NA	NA	NA	NA	NA
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
Phenol	18,000	210,000	8	NA	NA	NA	NA	NA
Benzo[a]anthracene	0.6	2	0.8	NA	NA	NA	NA	NA
Chrysene	62	230	80	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	35	140	1,200	NA	NA	NA	NA	NA
Butylbenzyl phthalate	1,200	14,000	230	NA	NA	NA	NA	NA
Carbazole	24	96	NC	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	NA	NA	NA	NA	NA
Dibenzofuran	NC	NC	NC	NA	NA	NA	NA	NA
Di-n-octylphthalate	2,400	27,000	3,300	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	0.6	2	2	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	6	23	25	NA	NA	NA	NA	NA
Benzo[a]pyrene	0.2	0.2	0.2	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	0.6	2	7	NA	NA	NA	NA	NA
Benzo[g,h i]perylene	380,000	30,000	NC	NA	NA	NA	NA	NA
Total SVOCs	NC	NC	NC	NA	NA	NA	NA	NA
	TPHC/EPH Criterion	**TPHC/EPH Criterion**	**TPHC/EPH Criterion**	**Results**	**Results**	**Results**	**Results**	**Result**
Total Petroleum Hydrocarbons	10,000*	10,000*	10,000*	NA	NA	NA	NA	NA

Notes:

NJDEP RDCSRS: Residential Direct Contact Soil Remediation Standards

NJDEP NRDCSRS: Non-Residential Direct Contact Soil Remediation Standards

NJDEP DIGWSSL: Default Impact to Ground Water Soil Screening Levels

10,000* : TPHC/EPH Criterion based on NJDEP Supplemental Remediation Investigation Report approval correspondence dated March 27,2009

Bold and yellow: Result reported above the NJDEP RDCSRS

Bold and red: Result reported above the NJDEP NRDCSRS and RDCSRS

Bold and blue: Result reported above NJDEP DIGWSSL

Bold and purple: Result reported above both NJDEP RDCSRS and DIGWSSL

Bold and green: Result reported exceeds all three criteria

NC: No Criteria

NA: Not Analyzed

ND: Not Detected

mg/kg: milligrams per kilogram

J: Estimated value

bgs: below ground surface

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ɔw York and New Jersey
ional Airport, Hangar 14
ampling Results

S-3D	S-4	S-4D	S-5	S-5D	S-6	S-6D	S-7	S-7D	S-8	S-8D	S-9	S-9D
1604-4	1604-5	1604-6	1585-13	1585-14	1585-15	1585-16	1585-11	1585-12	1585-9	1585-10	1916-3	1916-4
5/2/2005	5/2/2005	5/2/2005	4/29/2005	4/29/2005	4/29/2005	4/29/2005	4/29/2005	4/29/2005	4/29/2005	4/29/2005	4/29/2005	4/29/2005
9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Results	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	ND
NA	NA	NA	NA	NA	NA	NA	NA	NA	ND	ND	ND	0.86
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.86
Results	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Results	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Results	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

			Sample Identification	S-10	S-10D	S-11	S-11D	S-12
			Laboratory Number	1585-29	1585-30	1585-31	1585-32	1585-
			Sample Date	4/29/2005	4/29/2005	4/29/2005	4/29/2005	4/29/2(
			Sample Depth (feet bgs)	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/k
PCBs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Resul**
Aroclor-1016	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1221	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1232	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1242	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1248	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1254	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1260	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1262	NC	NC	NC	NA	NA	NA	NA	NA
Aroclor-1268	NC	NC	NC	NA	NA	NA	NA	NA
Total PCBs	0.2	1	0.2	ND	ND	ND	ND	ND
VOCs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Resul**
Total Xylenes	12,000	170,000	19	NA	NA	ND	ND	NA
Trichloroethene	7	20	0.01	NA	NA	ND	0.36	NA
Isopropylbenzene	NC	NC	NC	NA	NA	ND	ND	NA
1 ,3,5-Trimethylbenzene	NC	NC	NC	NA	NA	ND	ND	NA
sec-Butylbenzene	NC	NC	NC	NA	NA	ND	ND	NA
n-Butylbenzene	NC	NC	NC	NA	NA	ND	ND	NA
Total VOCs	NC	NC	NC	NA	NA	ND	0.36	NA
SVOCs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Resul**
2-Methylnapthalene	230	2,400	8	NA	NA	NA	NA	NA
4-Methylphenol	31	340	NC	NA	NA	NA	NA	NA
Naphthalene	6	17	25	NA	NA	ND	0.45 J	NA
Acenaphthene	3,400	37,000	110	NA	NA	ND	ND	NA
Acenaphthylene	NC	300,000	NC	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	ND	ND	NA
Phenanthrene	NC	300,000	NC	NA	NA	ND	ND	NA
Anthracene	17,000	30,000	2400	NA	NA	ND	ND	NA
Di-n-butyl phthalate	6,100	68,000	760	NA	NA	ND	ND	NA
Fluoranthene	2,300	24,000	1,300	NA	NA	ND	0.36 J	NA
Pyrene	1,700	18,000	840	NA	NA	ND	0.40 J	NA
Phenol	18,000	210,000	8	NA	NA	ND	ND	NA
Benzo[a]anthracene	0.6	2	0.8	NA	NA	ND	0.31 J	NA
Chrysene	62	230	80	NA	NA	ND	0.36 J	NA
bis(2-Ethylhexyl)phthalate	35	140	1,200	NA	NA	ND	ND	NA
Butylbenzyl phthalate	1,200	14,000	230	NA	NA	ND	ND	NA
Carbazole	24	96	NC	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	NA	NA	ND	ND	NA
Dibenzofuran	NC	NC	NC	NA	NA	NA	NA	NA
Di-n-octylphthalate	2,400	27,000	3,300	NA	NA	ND	ND	NA
Benzo[b]fluoranthene	0.6	2	2	NA	NA	ND	0.46 J	NA
Benzo[k]fluoranthene	6	23	25	NA	NA	ND	ND	NA
Benzo[a]pyrene	0.2	0.2	0.2	NA	NA	ND	0.34 J	NA
Indeno[1,2,3-cd]pyrene	0.6	2	7	NA	NA	ND	0.32 J	NA
Benzo[g,h i]perylene	380,000	30,000	NC	NA	NA	ND	0.35 J	NA
Total SVOCs	NC	NC	NC	NA	NA	ND	3.35 J	NA
	TPHC/EPH Criterion	**TPHC/EPH Criterion**	**TPHC/EPH Criterion**	**Results**	**Results**	**Results**	**Results**	**Resu**
Total Petroleum Hydrocarbons	10,000*	10,000*	10,000*	NA	NA	ND	3.35 J	NA

Notes:

NJDEP RDCSRS: Residential Direct Contact Soil Remedation Standards

NJDEP NRDCSRS: Non-Residential Direct Contact Soil Remediation Standards

NJDEP DIGWSSL: Default Impact to Ground Water Soil Screening Levels

10,000* : TPHC/EPH Criterion based on NJDEP Supplemental Remediation Investigation Report approval correspondence dated March 27,2009

Bold and yellow: Result reported above the NJDEP RDCSRS

Bold and red: Result reported above the NJDEP NRDCSRS and RDCSRS

Bold and blue: Result reported above NJDEP DIGWSSL

Bold and purple: Result reported above both NJDEP RDCSRS and DIGWSSL

Bold and green: Result reported exceeds all three criteria

NC: No Criteria

NA: Not Analyzed

ND: Not Detected

mg/kg: milligrams per kilogram

J: Estimated value

bgs: below ground surface

S-12D	S-13	S-13D	S-14	S-14D	S-15	S-15D	S-16	S-16D	S-17	S-17D	S-18	S-18D
1585-6	1585-1	1585-3	1585-2	1585-4	1604-11	1604-12	1585-27	1585-28	1585-25	1585-26	1585-23	1585-24
4/29/2005	5/2/2005	5/2/2005	5/2/2005	5/2/2005	5/2/2005	5/2/2005	4/29/2005	4/29/2005	4/29/2005	4/29/2005	5/4/2005	5/4/2005
9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.1	33
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.1	33
Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	0.14 J
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	0.14
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	1.6
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	3.1
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	4.98
Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	ND	0.39 J	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	ND	0.70 J	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	ND	1.6	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	ND	9	ND	ND	NA	NA	NA	NA	NA	NA	ND	1
NA	ND	1.9	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	0.43 J
NA	ND	9	ND	1.3 J	NA	NA	NA	NA	NA	NA	ND	1
NA	ND	6.4	ND	1.2	NA	NA	NA	NA	NA	NA	ND	0.78
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	ND	3.4	ND	ND	NA	NA	NA	NA	NA	NA	ND	0.30 J
NA	ND	3.4	ND	ND	NA	NA	NA	NA	NA	NA	ND	0.32 J
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	1.7
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	ND	0.61 J
NA	ND	3.1	ND	0.97	NA	NA	NA	NA	NA	NA	ND	0.27 J
NA	ND	1.2	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	ND	2.9	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	ND	1.9	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	ND	1.6	ND	ND	NA	NA	NA	NA	NA	NA	ND	ND
NA	ND	46.49 J	ND	3.47 J	NA	NA	NA	NA	NA	NA	ND	6.41 J
Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
NA	ND	46.49 J	ND	3.47 J	NA	NA	NA	NA	NA	NA	ND	6.41 J

			Sample Identification	S-19	S-19D	S-20	S-20D	SB-1
			Laboratory Number	1585-17	1585-18	1604-9	1604-10	4274-1
			Sample Date	4/29/2005	4/29/2005	5/2/2005	5/2/2005	10/24/2005
			Sample Depth (feet bgs)	2.5-3.0	9.5-10.0	2.5-3.0	9.5-10.0	2.5-3.0
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PCBs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Results**
Aroclor-1016	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1221	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1232	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1242	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1248	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1254	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1260	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1262	NC	NC	NC	NA	NA	NA	NA	NA
Aroclor-1268	NC	NC	NC	NA	NA	NA	NA	NA
Total PCBs	0.2	1	0.2	ND	ND	ND	ND	ND
VOCs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Results**
Total Xylenes	12,000	170,000	19	NA	NA	NA	NA	NA
Trichloroethene	7	20	0.01	NA	NA	NA	NA	NA
Isopropylbenzene	NC	NC	NC	NA	NA	NA	NA	NA
1 ,3,5-Trimethylbenzene	NC	NC	NC	NA	NA	NA	NA	NA
sec-Butylbenzene	NC	NC	NC	NA	NA	NA	NA	NA
n-Butylbenzene	NC	NC	NC	NA	NA	NA	NA	NA
Total VOCs	NC	NC	NC	NA	NA	NA	NA	NA
SVOCs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Results**
2-Methylnapthalene	230	2,400	8	NA	NA	NA	NA	NA
4-Methylphenol	31	340	NC	NA	NA	NA	NA	NA
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Acenaphthene	3,400	37,000	110	NA	NA	NA	NA	NA
Acenaphthylene	NC	300,000	NC	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Phenanthrene	NC	300,000	NC	NA	NA	NA	NA	NA
Anthracene	17,000	30,000	2400	NA	NA	NA	NA	NA
Di-n-butyl phthalate	6,100	68,000	760	NA	NA	NA	NA	NA
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
Phenol	18,000	210,000	8	NA	NA	NA	NA	NA
Benzo[a]anthracene	0.6	2	0.8	NA	NA	NA	NA	NA
Chrysene	62	230	80	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	35	140	1,200	NA	NA	NA	NA	NA
Butylbenzyl phthalate	1,200	14,000	230	NA	NA	NA	NA	NA
Carbazole	24	96	NC	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	NA	NA	NA	NA	NA
Dibenzofuran	NC	NC	NC	NA	NA	NA	NA	NA
Di-n-octylphthalate	2,400	27,000	3,300	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	0.6	2	2	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	6	23	25	NA	NA	NA	NA	NA
Benzo[a]pyrene	0.2	0.2	0.2	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	0.6	2	7	NA	NA	NA	NA	NA
Benzo[g,h i]perylene	380,000	30,000	NC	NA	NA	NA	NA	NA
Total SVOCs	NC	NC	NC	NA	NA	NA	NA	NA
	TPHC/EPH Criterion	**TPHC/EPH Criterion**	**TPHC/EPH Criterion**	**Results**	**Results**	**Results**	**Results**	**Results**
Total Petroleum Hydrocarbons	10,000*	10,000*	10,000*	NA	NA	NA	NA	NA

Notes:

NJDEP RDCSRS: Residential Direct Contact Soil Remediation Standards

NJDEP NRDCSRS: Non-Residential Direct Contact Soil Remediation Standards

NJDEP DIGWSSL: Default Impact to Ground Water Soil Screening Levels

10,000* : TPHC/EPH Criterion based on NJDEP Supplemental Remediation Investigation Report approval correspondence dated March 27,2009

Bold and yellow: Result reported above the NJDEP RDCSRS

Bold and red: Result reported above the NJDEP NRDCSRS and RDCSRS

Bold and blue: Result reported above NJDEP DIGWSSL

Bold and purple: Result reported above both NJDEP RDCSRS and DIGWSSL

Bold and green: Result reported exceeds all three criteria

NC: No Criteria

NA: Not Analyzed

ND: Not Detected

mg/kg: milligrams per kilogram

J: Estimated value

bgs: below ground surface

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ıtional Airport, Hangar 14
Sampling Results

SB-1D	SB-2	SB-2D	SB-3	SB-3D	SB-4	SB-4D	SB-5	SB-5D	SB-6	SB-6D	SB-7	SB-7D
4274-2	4274-3	4274-4	4274-5	4274-6	4274-7	4274-8	4274-9	4274-10	4838-1	4838-2	4838-3	4838-4
0/24/2005	10/24/2005	10/24/2005	10/24/2005	10/24/2005	10/24/2005	10/24/2005	10/24/2005	10/24/2005	11/16/2005	11/16/2005	11/16/2005	11/16/2005
6.5-7.0	2.5-3.0	7.5-8.0	2.5-3.0	7.5-8.0	2.5-3.0	7.5-8.0	2.5-3.0	6.5-7.0	2.5-3.0	7.5-8.0	2.5-3.0	7.5-8.0
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Results	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	2.9	7.8	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	0.049	0.14	ND	ND	ND	ND	ND	ND	ND	ND
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ND	ND	ND	2.9	7.9	ND	ND	ND	ND	ND	0.18	ND	ND
Results	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Results	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Results	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**	**Results**
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

			Sample Identification	SB-8	SB-8D	SB-9	SB-9D	SB-1*	
			Laboratory Number	4838-5	4838-6	4838-7	4838-8	AC23158-001	A
			Sample Date	11/16/2005	11/16/2005	11/16/2005	11/16/2005	4/26/2006	
			Sample Depth (feet bgs)	2.5-3.0	7.5-8.0	2.5-3.0	7.5-8.0	12.5-13.0	
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	
PCBs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Results**	
Aroclor-1016	NC	NC	NC	ND	ND	ND	ND	ND	
Aroclor-1221	NC	NC	NC	ND	ND	ND	ND	ND	
Aroclor-1232	NC	NC	NC	ND	ND	ND	ND	ND	
Aroclor-1242	NC	NC	NC	ND	ND	ND	ND	6.3	
Aroclor-1248	NC	NC	NC	ND	ND	ND	ND	ND	
Aroclor-1254	NC	NC	NC	ND	ND	ND	ND	ND	
Aroclor-1260	NC	NC	NC	ND	ND	ND	ND	ND	
Aroclor-1262	NC	NC	NC	NA	NA	NA	NA	NA	
Aroclor-1268	NC	NC	NC	NA	NA	NA	NA	NA	
Total PCBs	0.2	1	0.2	ND	ND	ND	ND	6.3	
VOCs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Results**	
Total Xylenes	12,000	170,000	19	NA	NA	NA	NA	ND	
Trichloroethene	7	20	0.01	NA	NA	NA	NA	ND	
Isopropylbenzene	NC	NC	NC	NA	NA	NA	NA	NA	
1 ,3,5-Trimethylbenzene	NC	NC	NC	NA	NA	NA	NA	NA	
sec-Butylbenzene	NC	NC	NC	NA	NA	NA	NA	NA	
n-Butylbenzene	NC	NC	NC	NA	NA	NA	NA	NA	
Total VOCs	NC	NC	NC	NA	NA	NA	NA	ND	
SVOCs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Results**	
2-Methylnapthalene	230	2,400	8	NA	NA	NA	NA	0.16 J	
4-Methylphenol	31	340	NC	NA	NA	NA	NA	0.88	
Naphthalene	6	17	25	NA	NA	NA	NA	0.1 J	
Acenaphthene	3,400	37,000	110	NA	NA	NA	NA	0.095 J	
Acenaphthylene	NC	300,000	NC	NA	NA	NA	NA	ND	
Fluorene	2,300	24,000	170	NA	NA	NA	NA	0.083 J	
Phenanthrene	NC	300,000	NC	NA	NA	NA	NA	0.37 J	
Anthracene	17,000	30,000	2400	NA	NA	NA	NA	0.093 J	
Di-n-butyl phthalate	6,100	68,000	760	NA	NA	NA	NA	0.053 J	
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	0.45	
Pyrene	1,700	18,000	840	NA	NA	NA	NA	0.38 J	
Phenol	18,000	210,000	8	NA	NA	NA	NA	3.1	
Benzo[a]anthracene	0.6	2	0.8	NA	NA	NA	NA	0.17 J	
Chrysene	62	230	80	NA	NA	NA	NA	0.16 J	
bis(2-Ethylhexyl)phthalate	35	140	1,200	NA	NA	NA	NA	0.73	
Butylbenzyl phthalate	1,200	14,000	230	NA	NA	NA	NA	0.18 J	
Carbazole	24	96	NC	NA	NA	NA	NA	ND	
Dibenz(a,h)anthracene	0.2	0.2	0.8	NA	NA	NA	NA	ND	
Dibenzofuran	NC	NC	NC	NA	NA	NA	NA	0.057 J	
Di-n-octylphthalate	2,400	27,000	3,300	NA	NA	NA	NA	0.12 J	
Benzo[b]fluoranthene	0.6	2	2	NA	NA	NA	NA	0.2 J	
Benzo[k]fluoranthene	6	23	25	NA	NA	NA	NA	0.09 J	
Benzo[a]pyrene	0.2	0.2	0.2	NA	NA	NA	NA	0.16 J	
Indeno[1,2,3-cd]pyrene	0.6	2	7	NA	NA	NA	NA	0.1 J	
Benzo[g,h i]perylene	380,000	30,000	NC	NA	NA	NA	NA	0.13 J	
Total SVOCs	NC	NC	NC	NA	NA	NA	NA	7.861 J	
	TPHC/EPH Criterion	**TPHC/EPH Criterion**	**TPHC/EPH Criterion**	**Results**	**Results**	**Results**	**Results**	**Results**	
Total Petroleum Hydrocarbons	10,000*	10,000*	10,000*	NA	NA	NA	NA	1,400	

Notes:

NJDEP RDCSRS: Residential Direct Contact Soil Remediation Standards

NJDEP NRDCSRS: Non-Residential Direct Contact Soil Remediation Standards

NJDEP DIGWSSL: Default Impact to Ground Water Soil Screening Levels

10,000* : TPHC/EPH Criterion based on NJDEP Supplemental Remediation Investigation Report approval correspondence dated March 27,2009

Bold and yellow: Result reported above the NJDEP RDCSRS

Bold and red: Result reported above the NJDEP NRDCSRS and DIGWSSL

Bold and blue: Result reported above NJDEP DIGWSSL

Bold and purple: Result reported above both NJDEP RDCSRS and DIGWSSL

Bold and green: Result reported exceeds all three criteria

NC: No Criteria

NA: Not Analyzed

ND: Not Detected

mg/kg: milligrams per kilogram

J: Estimated value

bgs: below ground surface

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Sampling Results

-1 DUP*	SB-2*	SB-3*	SB-4*	MW-1/SB-5*	D1	D2	D2	D-3	D-3	D-4	D-4	D-5
3158-002	AC23158-003	AC23180-001	AC23180-002	AC23223-001	934537	936344	936345	935560	935561	935562	935563	935557
26/2006	4/26/2006	4/27/2006	4/27/2006	4/28/2006	7/8/2008	7/16/2008	7/16/2008	7/15/2008	7/15/2008	7/15/2008	7/15/2008	7/11/2008
2.5-13.0	10.5-11.0	13.5-14.0	9.5-10.0	9.5-10.0	14.5-15.0	4.5-5.0	14.5-15.0	4.5-5.0	14.5-15.0	4.5-5.0	14.5-15.0	4.5-5.0
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
5.1	30	0.21	14	ND	2.5	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	0.067	2.5	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
NA	NA	NA	NA	ND	ND	ND	0.23	ND	ND	ND	ND	ND
NA	NA	NA	NA	ND	ND	ND	ND	ND	ND	ND	ND	ND
5.1	30	0.28	16.5	ND	2.5	ND	0.23	ND	ND	ND	ND	ND
Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
ND	0.13 J	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
ND	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
ND	0.13	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
0.19 J	1.9	0.068 J	6.9	ND	NA	NA	NA	NA	NA	NA	NA	NA
0.69	ND	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
0.1 J	2.3	0.078 J	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
0.13 J	0.79	0.12 J	0.46 J	0.059 J	NA	NA	NA	NA	NA	NA	NA	NA
ND	0.19 J	ND	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
0.2 J	1.2	0.14 J	0.51 J	0.069 J	NA	NA	NA	NA	NA	NA	NA	NA
0.75	6.1	0.95	1.4 J	0.23 J	NA	NA	NA	NA	NA	NA	NA	NA
0.14 J	1	0.19 J	0.3 J	0.072 J	NA	NA	NA	NA	NA	NA	NA	NA
0.051 J	0.28 J	0.048 J	0.27 J	0.064 J	NA	NA	NA	NA	NA	NA	NA	NA
2.1	5	1.4	1.6 J	0.47	NA	NA	NA	NA	NA	NA	NA	NA
2	4.2	1.1	1.3 J	ND	NA	NA	NA	NA	NA	NA	NA	NA
1.5	0.74	0.073 J	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
0.61	1.8	0.59	0.59 J	0.29 J	NA	NA	NA	NA	NA	NA	NA	NA
0.74	2	0.64	0.57 J	0.27 J	NA	NA	NA	NA	NA	NA	NA	NA
0.63	1.9	0.74	1.2 J	0.21 J	NA	NA	NA	NA	NA	NA	NA	NA
0.14 J	ND	0.17 J	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
0.13 J	0.63	0.18 J	ND	ND	NA	NA	NA	NA	NA	NA	NA	NA
0.1 J	0.27 J	0.15 J	ND	0.065 J	NA	NA	NA	NA	NA	NA	NA	NA
0.07 J	0.73	0.12 J	0.22 J	ND	NA	NA	NA	NA	NA	NA	NA	NA
0.078 J	0.62	ND	0.67 J	ND	NA	NA	NA	NA	NA	NA	NA	NA
0.97	1.8	0.99	0.63 J	0.41	NA	NA	NA	NA	NA	NA	NA	NA
0.31 J	0.62	0.35 J	0.3 J	0.16 J	NA	NA	NA	NA	NA	NA	NA	NA
0.59	1.3	0.71	0.49 J	0.31 J	NA	NA	NA	NA	NA	NA	NA	NA
0.33 J	0.7	0.51	0.29 J	0.2 J	NA	NA	NA	NA	NA	NA	NA	NA
0.31 J	0.75	0.54	0.35 J	0.2 J	NA	NA	NA	NA	NA	NA	NA	NA
12.86 J	36.76 J	9.86 J	18.05 J	3.08 J	NA	NA	NA	NA	NA	NA	NA	NA
Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
1,100	7,200	1,200	13,000	92	NA	NA	NA	NA	NA	NA	NA	NA

			Sample Identification	D-5	D-6	D-7	D-7	D-8
			Laboratory Number	935558	935559	934547	934548	936346
			Sample Date	7/11/2008	7/11/2008	7/10/2008	7/10/2008	7/16/2008
			Sample Depth (feet bgs)	14.5-15.0	14.5-15.0	4.5-5.0	14.5-15.0	4.5-5.0
			Units	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
PCBs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Results**
Aroclor-1016	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1221	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1232	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1242	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1248	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1254	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1260	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1262	NC	NC	NC	ND	ND	ND	ND	ND
Aroclor-1268	NC	NC	NC	ND	ND	ND	ND	ND
Total PCBs	0.2	1	0.2	ND	ND	ND	ND	ND
VOCs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Results**
Total Xylenes	12,000	170,000	19	NA	NA	NA	NA	NA
Trichloroethene	7	20	0.01	NA	NA	NA	NA	NA
Isopropylbenzene	NC	NC	NC	NA	NA	NA	NA	NA
1 ,3,5-Trimethylbenzene	NC	NC	NC	NA	NA	NA	NA	NA
sec-Butylbenzene	NC	NC	NC	NA	NA	NA	NA	NA
n-Butylbenzene	NC	NC	NC	NA	NA	NA	NA	NA
Total VOCs	NC	NC	NC	NA	NA	NA	NA	NA
SVOCs	**NJDEP RDCSRS**	**NJDEP NRDCSRS**	**NJDEP DIGWSSL**	**Results**	**Results**	**Results**	**Results**	**Results**
2-Methylnapthalene	230	2,400	8	NA	NA	NA	NA	NA
4-Methylphenol	31	340	NC	NA	NA	NA	NA	NA
Naphthalene	6	17	25	NA	NA	NA	NA	NA
Acenaphthene	3,400	37,000	110	NA	NA	NA	NA	NA
Acenaphthylene	NC	300,000	NC	NA	NA	NA	NA	NA
Fluorene	2,300	24,000	170	NA	NA	NA	NA	NA
Phenanthrene	NC	300,000	NC	NA	NA	NA	NA	NA
Anthracene	17,000	30,000	2400	NA	NA	NA	NA	NA
Di-n-butyl phthalate	6,100	68,000	760	NA	NA	NA	NA	NA
Fluoranthene	2,300	24,000	1,300	NA	NA	NA	NA	NA
Pyrene	1,700	18,000	840	NA	NA	NA	NA	NA
Phenol	18,000	210,000	8	NA	NA	NA	NA	NA
Benzo[a]anthracene	0.6	2	0.8	NA	NA	NA	NA	NA
Chrysene	62	230	80	NA	NA	NA	NA	NA
bis(2-Ethylhexyl)phthalate	35	140	1,200	NA	NA	NA	NA	NA
Butylbenzyl phthalate	1,200	14,000	230	NA	NA	NA	NA	NA
Carbazole	24	96	NC	NA	NA	NA	NA	NA
Dibenz(a,h)anthracene	0.2	0.2	0.8	NA	NA	NA	NA	NA
Dibenzofuran	NC	NC	NC	NA	NA	NA	NA	NA
Di-n-octylphthalate	2,400	27,000	3,300	NA	NA	NA	NA	NA
Benzo[b]fluoranthene	0.6	2	2	NA	NA	NA	NA	NA
Benzo[k]fluoranthene	6	23	25	NA	NA	NA	NA	NA
Benzo[a]pyrene	0.2	0.2	0.2	NA	NA	NA	NA	NA
Indeno[1,2,3-cd]pyrene	0.6	2	7	NA	NA	NA	NA	NA
Benzo[g,h i]perylene	380,000	30,000	NC	NA	NA	NA	NA	NA
Total SVOCs	NC	NC	NC	NA	NA	NA	NA	NA
	TPHC/EPH Criterion	**TPHC/EPH Criterion**	**TPHC/EPH Criterion**	**Results**	**Results**	**Results**	**Results**	**Results**
Total Petroleum Hydrocarbons	10,000*	10,000*	10,000*	NA	NA	NA	NA	NA

Notes:

NJDEP RDCSRS: Residential Direct Contact Soil Remediation Standards

NJDEP NRDCSRS: Non-Residential Direct Contact Soil Remediation Standards

NJDEP DIGWSSL: Default Impact to Ground Water Soil Screening Levels

10,000* : TPHC/EPH Criterion based on NJDEP Supplemental Remediation Investigation Report approval correspondence dated March 27,2009

Bold and yellow: Result reported above the NJDEP RDCSRS

Bold and red: Result reported above the NJDEP NRDCSRS and RDCSRS

Bold and blue: Result reported above NJDEP DIGWSSL

Bold and purple: Result reported above both NJDEP RDCSRS and DIGWSSL

Bold and green: Result reported exceeds all three criteria

NC: No Criteria

NA: Not Analyzed

ND: Not Detected

mg/kg: milligrams per kilogram

J: Estimated value

bgs: below ground surface

able 1
lew York and New Jersey
ational Airport, Hangar 14
Sampling Results

D-8	D-9/OWS-2	FD-1A	FD-1A	FD-1A	FD-1B	FD-1B	FD-1B	FD-4A	FD-4A	FD-4A	FD-4B	FD-4B	FD-4B
936347	932125	932122	932123	932124	932199	932120	932121	934549	934550	934551	934538	934539	934540
16/2008	7/2/2008	7/2/2008	7/2/2008	7/2/2008	7/2/2008	7/2/2008	7/2/2008	7/10/2008	7/10/2008	7/10/2008	7/10/2008	7/10/2008	7/10/2008
4.5-15.0	14.5-15.0	2.5-3.0	9.5-10.0	14.5-15.0	2.5-3.0	9.5-10.0	14.5-15.0	2.5-3.0	9.5-10.0	14.5-15.0	2.5-3.0	9.5-10.0	14.5-15.0
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
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NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
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NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results	Results
NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

FIGURES

NEW JERSEY

QUADRANGLE LOCATION

N

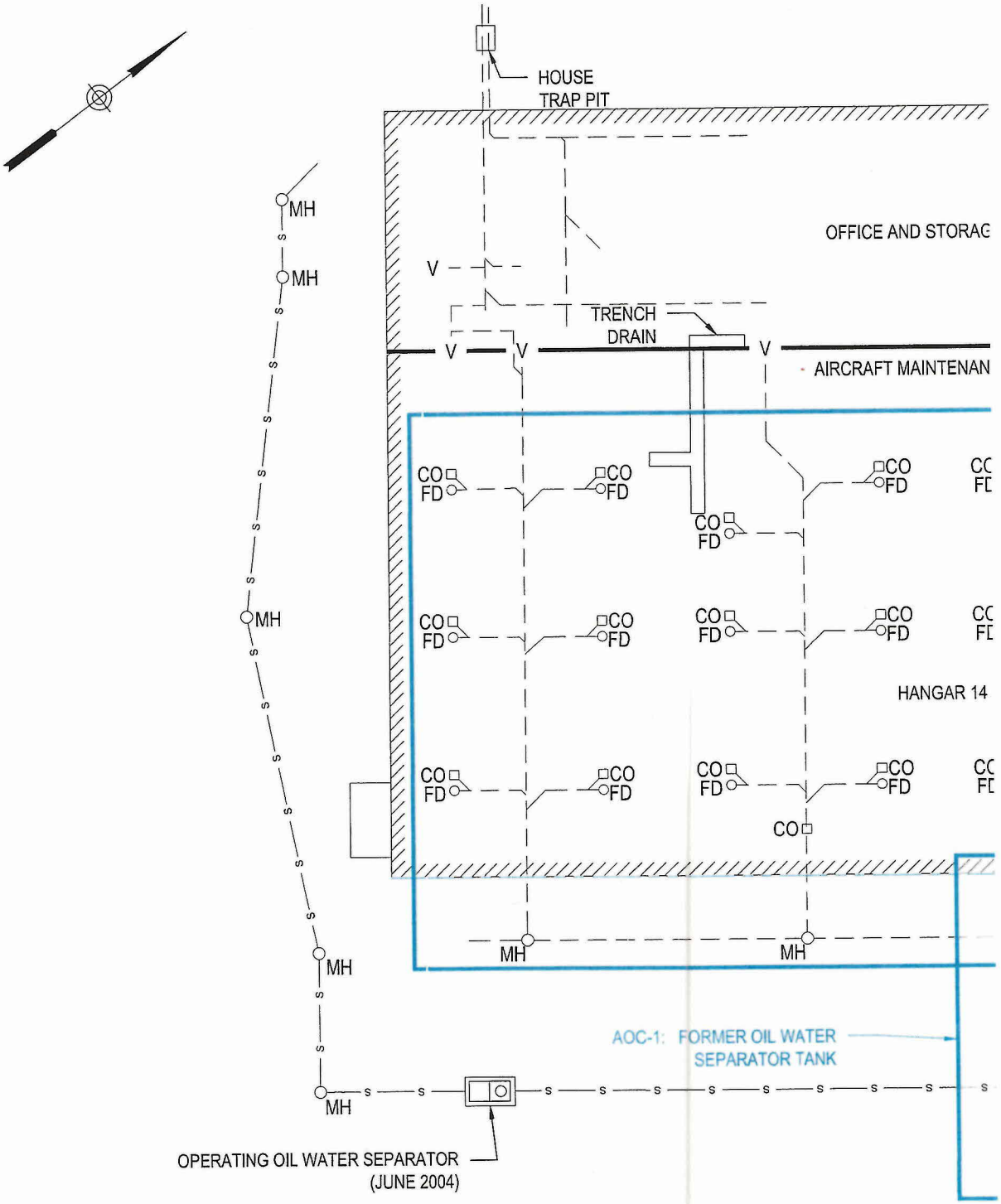
0 2000' 4000'

APPROXIMATE SCALE IN FEET

MAP SOURCE:

BASE MAP DEVELOPED FROM THE ELIZABETH, NEW JERSEY 7.5 MINUTE U.S.G.S. TOPOGRAPHIC QUADRANGLE, DATED 1995.

THE PORT AUTHORITY OF NY & NJ		Discipline: ENVIRONMENTAL	JANUARY 2016 (Date)	of	
J.ACTON (Designed by) H.DELGADO (Drawn by) D.CARLSON (Checked by)	SITE LOCATION MAP	NEWARK LIBERTY INTERNATIONAL AIRPORT HANGAR 14	CA44-154.226 (Contract Number) PID Number	Workorder Number 490011696	Drawing Number FIGURE_1

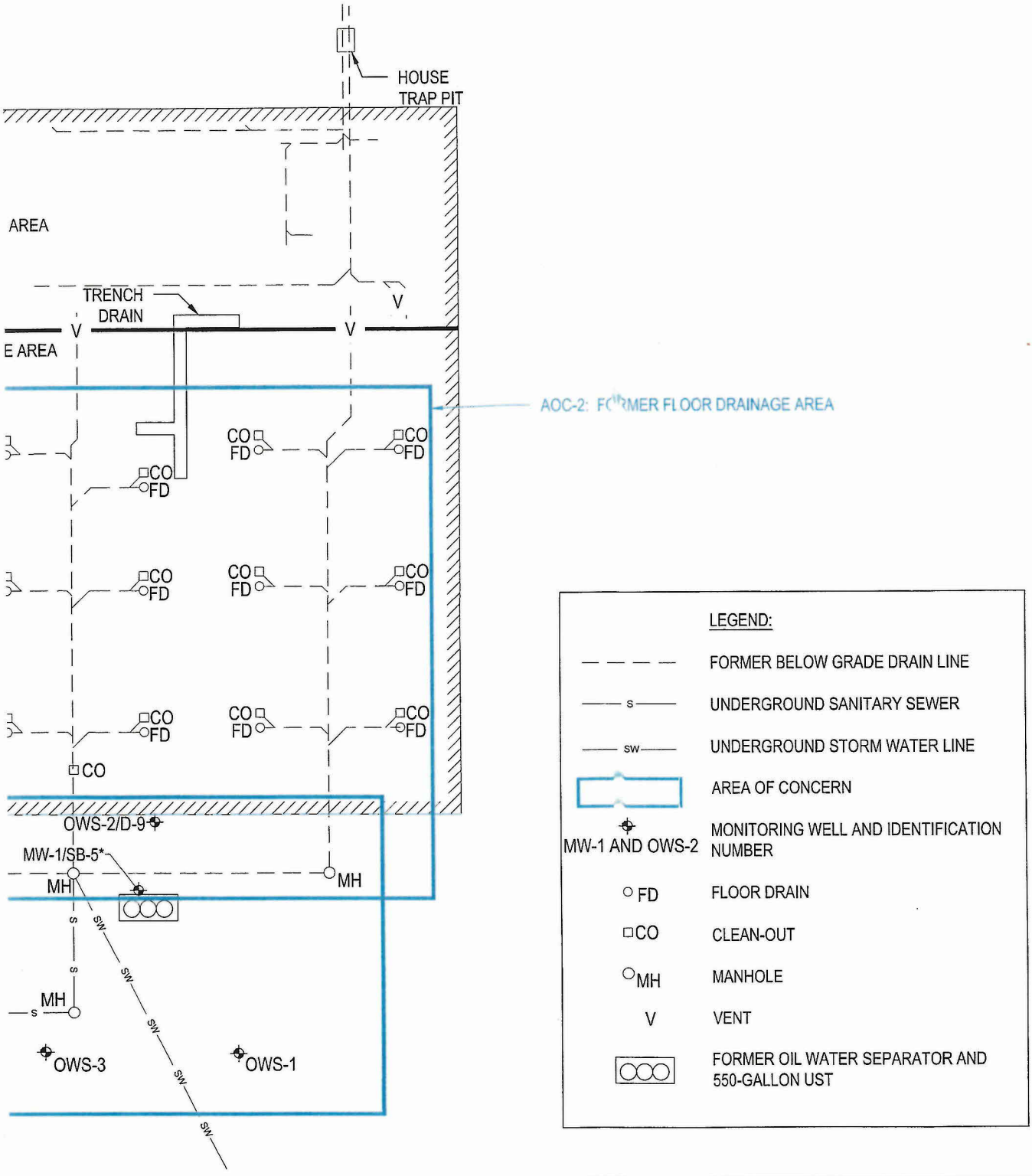


0 40 80

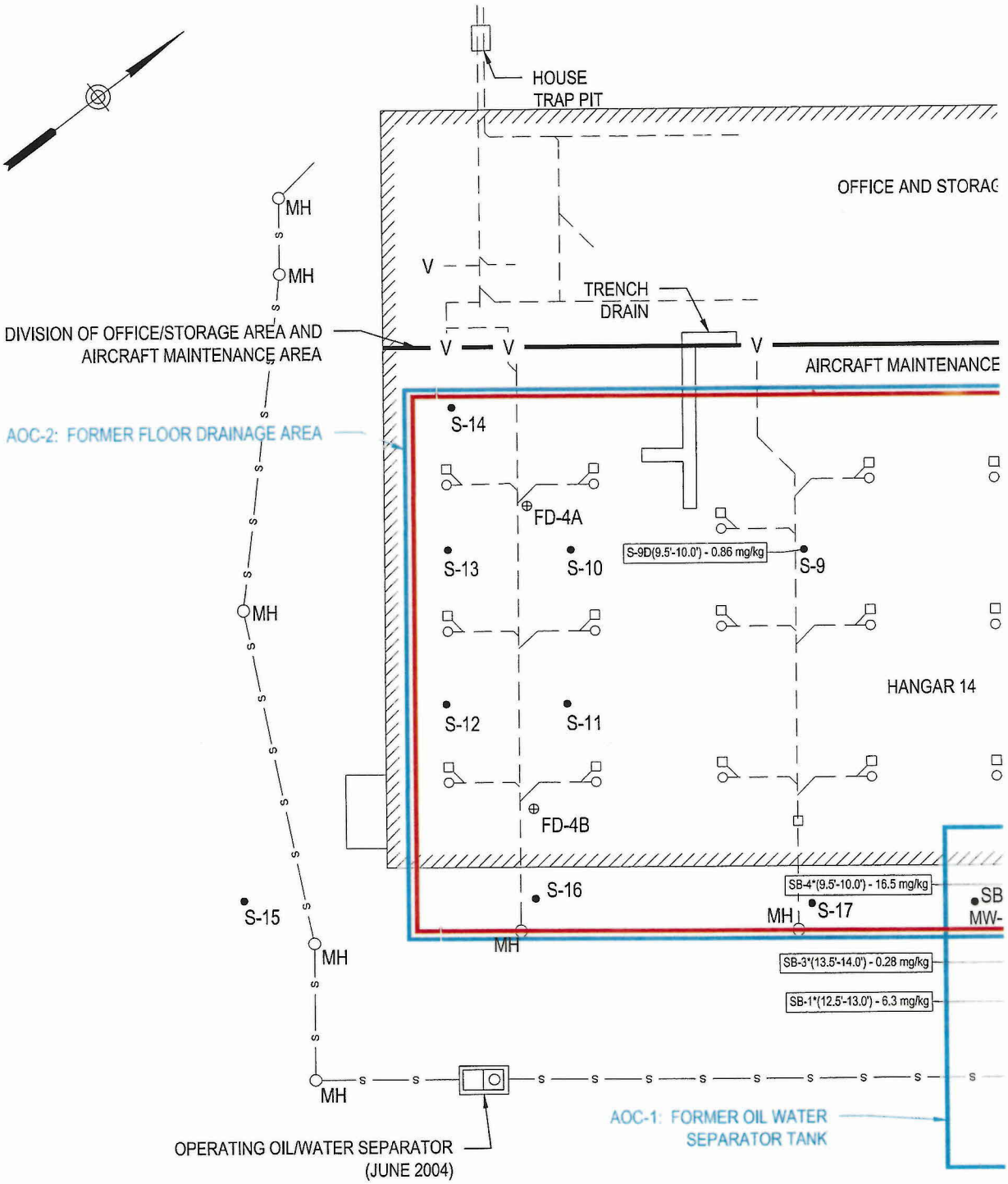
SCALE IN FEET

NOTE:
FIGURE REPRESENTS CONDITIONS PRIOR TO HANGAR 14 DEMOLITION.

BASE MAP SOURCE:
SEPTEMBER 2008 REMEDIAL INVESTIGATION REPORT PREPARED BY HATCH MOTT MACDONALD.



THE PORT AUTHORITY OF NY & NJ		Discipline: ENVIRONMENTAL	JANUARY 2016 (Date)	of
J.ACTON (Designed by) H.DELGADO (Drawn by) D.CARLSON (Checked by)	SITE PLAN	NEWARK LIBERTY INTERNATIONAL AIRPORT HANGAR 14	CA44-154.226 (Contract Number) PID Number	Workorder Number 490011696 Drawing Number FIGURE_2

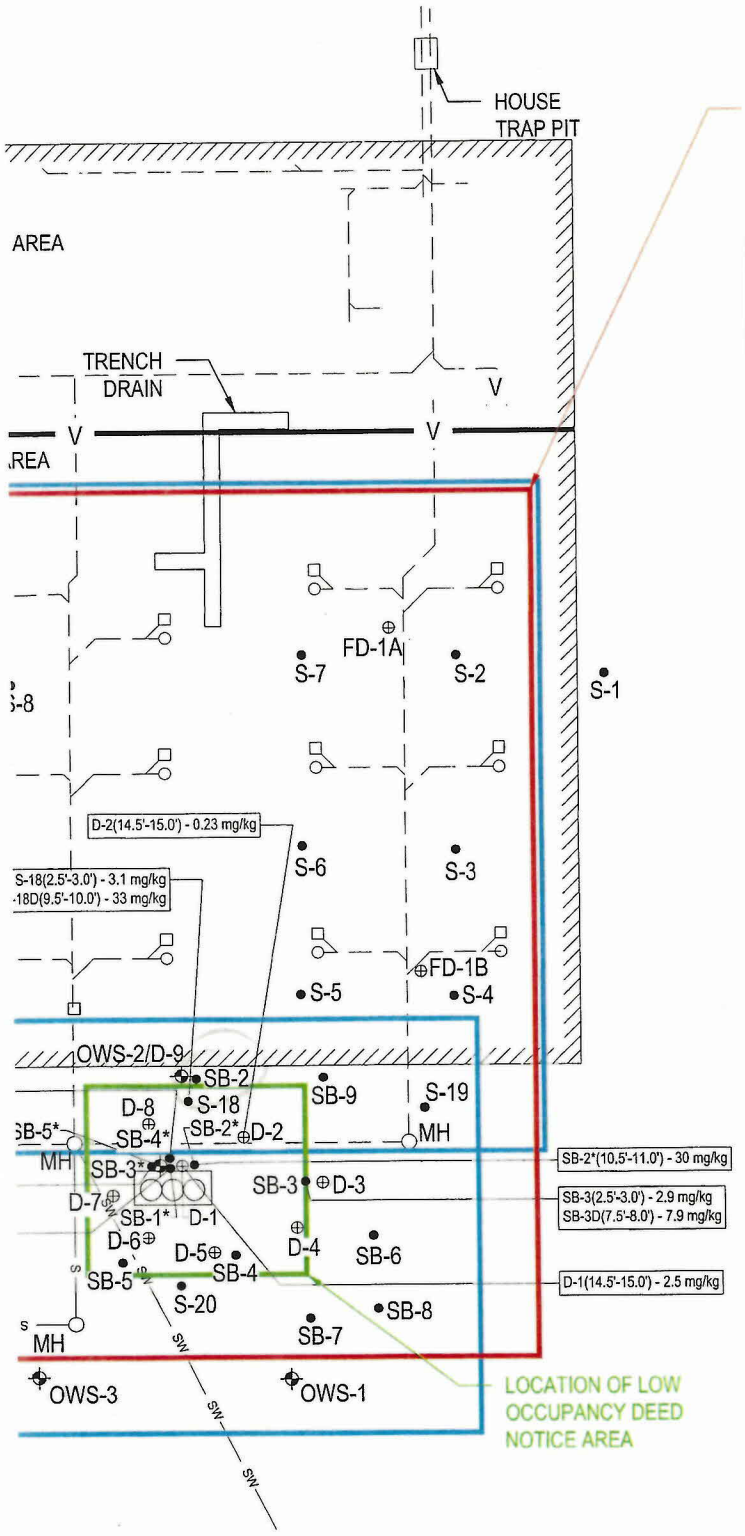


0 40 80

SCALE IN FEET

NOTE:
FIGURE REPRESENTS CONDITIONS PRIOR TO HANGAR 14 DEMOLITION.

BASE MAP SOURCE:
SEPTEMBER 2008 REMEDIAL INVESTIGATION REPORT PREPARED BY HATCH MOTT MACDONALD.

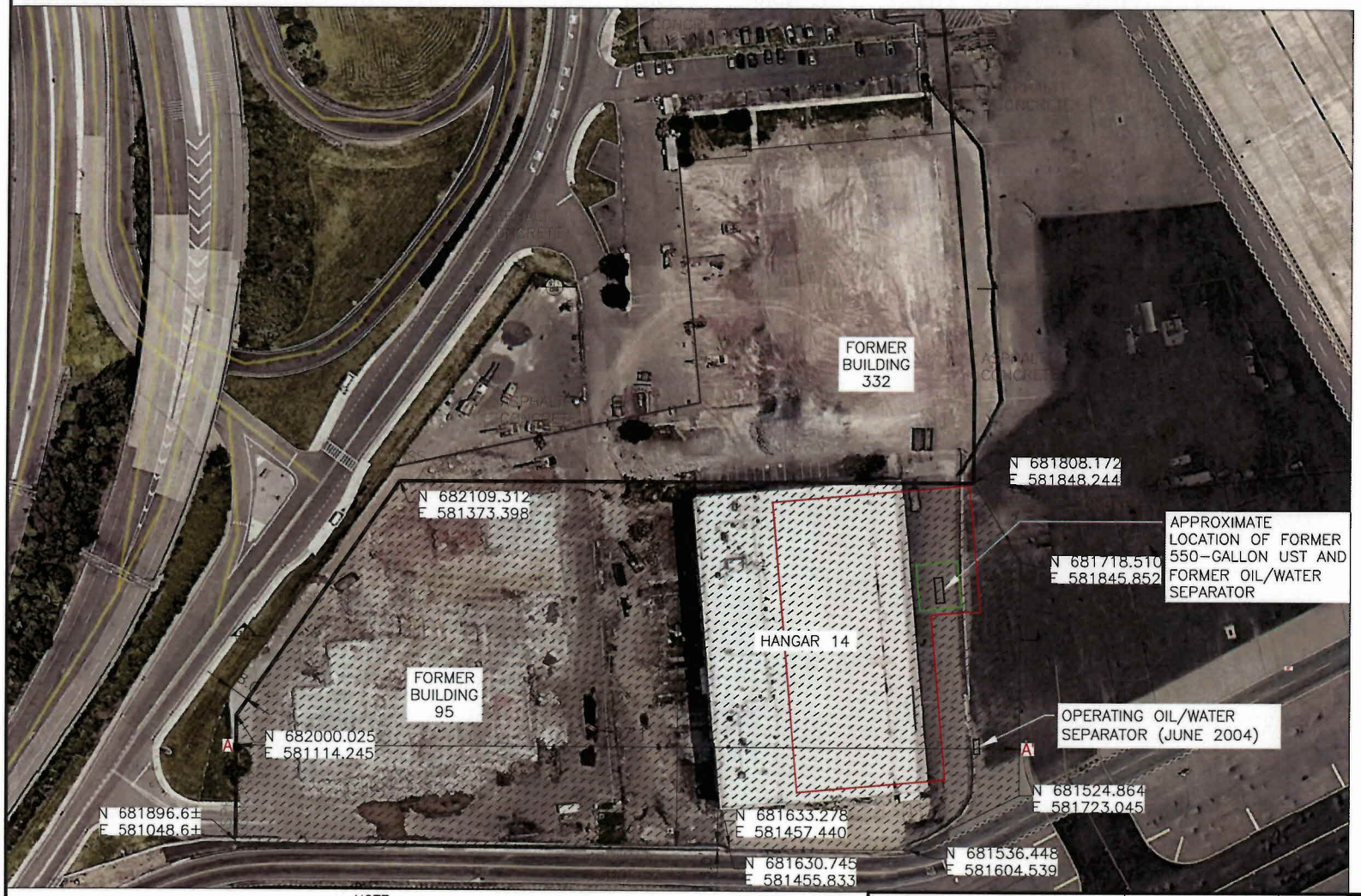


LOCATION OF PROPOSED INSTITUTIONAL CONTROL - DEED NOTICE WITH NJDEP SOIL REMEDIATION PERMIT FOR HIGH OCCUPANCY USE EXCEPT FOR LOW OCCUPANCY SECTOR AS NOTED (IN GREEN BELOW)

LEGEND:

— — — —	FORMER BELOW GRADE DRAIN LINE
—— s ——	UNDERGROUND SANITARY SEWER
—— sw ——	UNDERGROUND STORM WATER LINE
	AREA OF CONCERN
• S-1	APEX INSTALLED SOIL BORING LOCATION (APRIL AND JUNE 2005)
• SB-2	APEX INSTALLED SOIL BORING LOCATION (OCTOBER AND NOVEMBER 2005)
• SB-1*	HMM INSTALLED SOIL BORING LOCATION (APRIL 2006). THE ASTERISK WAS ASSIGNED BY SAMPLERS IN THE SAMPLE NAMES FOR THIS APRIL 2006 EVENT.
⊕ FD-1 AND D-1	DELINEATION SOIL BORING LOCATION (JULY 2008)
⊕ MW-1 AND OWS-2	MONITORING WELL AND IDENTIFICATION NUMBER
○	FLOOR DRAIN
□	CLEAN-OUT
○ MH	MANHOLE
V	VENT
SB-1* (12.5'-13.0') - 6.3 mg/kg	SAMPLE IDENTIFICATION, DEPTH, AND TOTAL PCB CONCENTRATIONS FOR SAMPLES EXCEEDING NJDEP SOIL REMEDIATION STANDARD (SRS) FOR TOTAL PCB (0.2 mg/kg) ARE SHOWN. ALL OTHER SAMPLES BELOW SRS.
	FORMER OIL WATER SEPARATOR AND 550-GALLON UST

THE PORT AUTHORITY OF NY & NJ		Discipline: ENVIRONMENTAL	APRIL 2016 (Date)	of
J.ACTON (Designed by) H.DELGADO (Drawn by) D.CARLSON (Checked by)	SOIL SAMPLING LOCATION PLAN AND LOCATION OF PROPOSED INSTITUTIONAL CONTROL	NEWARK LIBERTY INTERNATIONAL AIRPORT HANGAR 14	CA44-154.226 (Contract Number) PID Number	Workorder Number 490011696 Drawing Number FIGURE_3



LEGEND:

N: = NORTHING

E: = EASTING

UST = UNDERGROUND STORAGE TANK

AREA SUBJECT TO ENGINEERING CONTROL WITH DEED NOTICE FOR HIGH OCCUPANCY USE EXCEPT LOW OCCUPANCY SECTOR AS NOTED

A—A' LOCATION OF ENGINEERING CONTROL CROSS-SECTION SHOWN ON FIGURE 5.

AREAS TO BE NEWLY PAVED FOR USE AS OVERNIGHT AIRCRAFT PARKING

PROPOSED FENCE LOCATION

AREA SUBJECT TO LOW OCCUPANCY DEED NOTICE DUE TO PCB CONCENTRATIONS

0 100 200

SCALE IN FEET
SHEET SIZE 11X17

NOTE:
AERIAL DEPICTS SITE PRIOR TO DEMOLITION OF HANGAR 14.

THE PORT AUTHORITY OF NY & NJ

J ACTON	H DELGADO	D CARLSON
Designed by	Drawn by	Checked by

ENGINEERING CONTROL LOCATION MAP

Discipline: ENVIRONMENTAL

NEWARK LIBERTY INTERNATIONAL AIRPORT HANGAR 14

Date: APRIL 2016

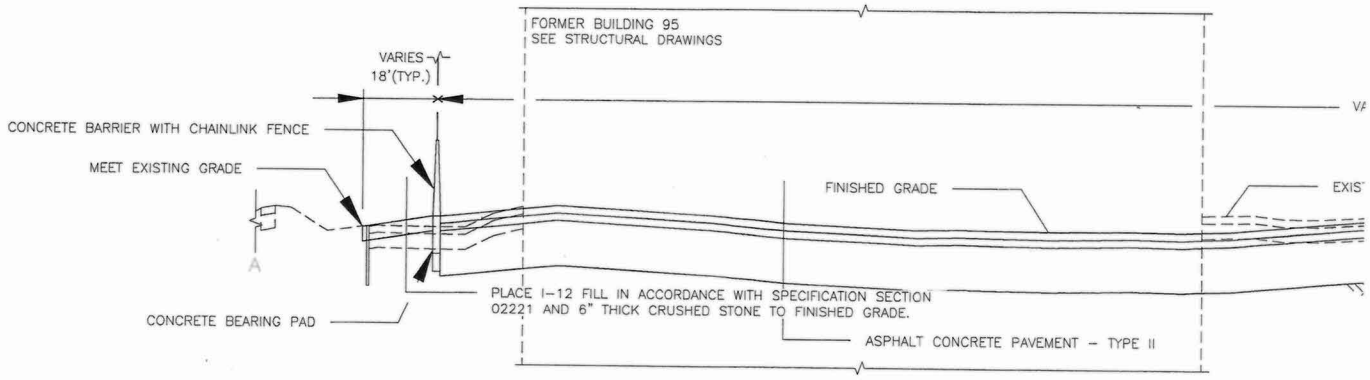
Contract Number: CA44-154.226

PD Number:

of

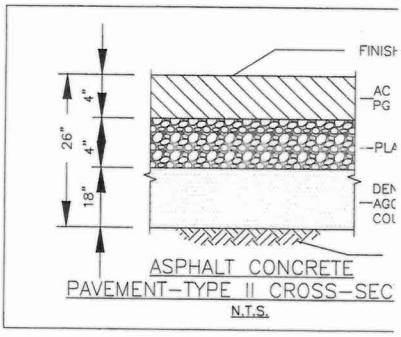
Workorder Number: 490011696

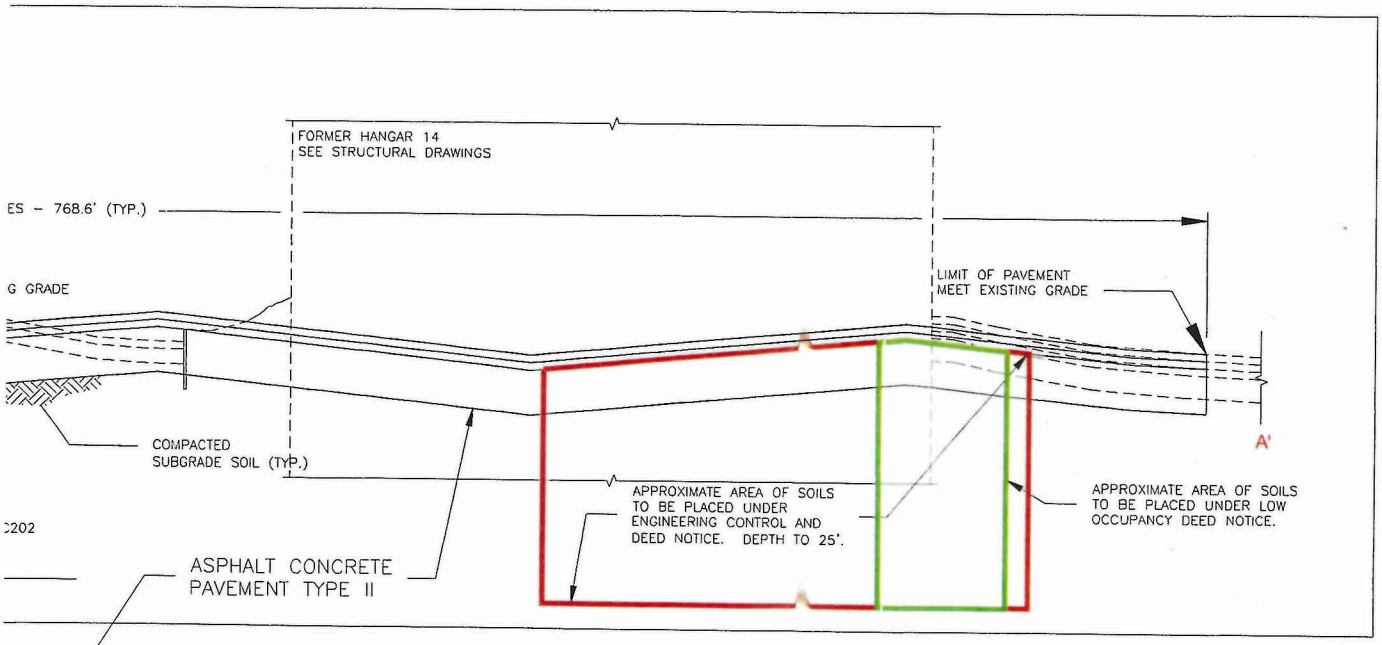
Drawing Number: FIGURE_4



NOTE: FOR REMOVALS SEE CONTRACT DRAWINC

N.T.S

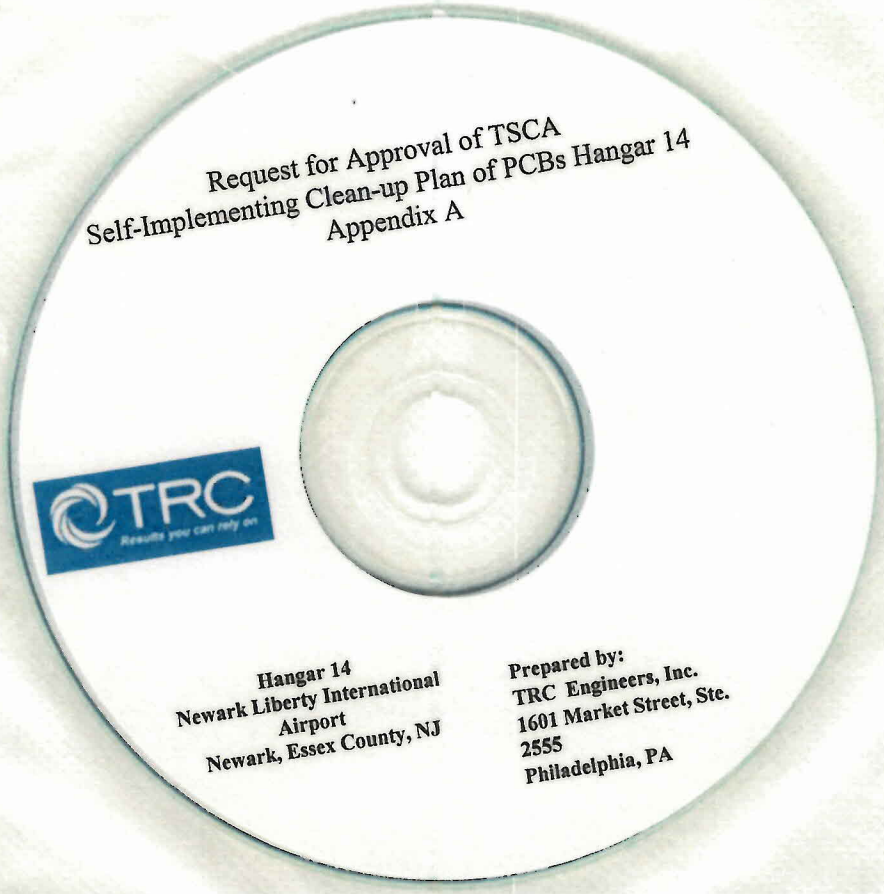




THE PORT AUTHORITY OF NY & NJ		Discipline: ENVIRONMENTAL	APRIL 2016 (Date)	of	
J.ACTON (Designed by) H.DELGADO (Drawn by) D.CARLSON (Checked by)	PROPOSED ENGINEERING CONTROL	NEWARK LIBERTY INTERNATIONAL AIRPORT HANGAR 14	CA44-154.226 (Contract Number) PID Number	Workorder Number 490011696 Drawing Number FIGURE_5	

APPENDIX A

HISTORIC REPORTS


Request for Approval of TSCA
Self-Implementing Clean-up Plan of PCBs Hangar 14
Appendix A
TRC
Results you can rely on
Hangar 14
Newark Liberty International Airport
Newark, Essex County, NJ
Prepared by:
TRC Engineers, Inc.
1601 Market Street, Ste. 2555
Philadelphia, PA

APPENDIX B

MARCH 27, 2009 NJDEP LETTER

State of New Jersey

Jon S. Corzine
Governor

Department of Environmental Protection

Mark N. Mauriello
Acting Commissioner

Bureau of Northern Field Operations
7 Ridgedale Avenue
Cedar Knolls, New Jersey 07927-1112
Phone #: 973-631-6401
Fax #: 973-656-4440

Port Authority of NY/NJ
Engineering Department
2 Gateway Center
Newark, New Jersey 07102
Att: Robert Pruno, Chief Env Engineer

Supplemental Remedial Investigation Report

Re: Groundwater Sampling Report – Hanger 14
Newark Airport
Rt 1 & 9, Newark, Essex County
SRP PI# 159640 EA ID #: SUB090001
BFO File Number: 07-14-A648

March 27,2009

Dear Mr. Pruno:

The New Jersey Department of Environmental Protection (Department) has completed review of the Supplemental Remedial Investigation Report (Report) received on Mar 18,2009. The Department has determined that the Report is in compliance with the Technical Requirements for Site Remediation, N.J.A.C. 7:26E and other applicable requirements. The Department hereby approves the Report, effective the date of this letter. Based on the results of the performed groundwater sampling, this office agrees that further investigation into the groundwater issue is not required.

Pursuant to the schedule applicable to the site you shall submit a Progress Report for the Soils Remedial Action Workplan on/by July 31,2009. Please submit the document by that date, or submit a written request for an extension at least 2 weeks prior to the due date. Failure to submit the required report in accordance with the schedule may result in the initiation of MOA Termination. For your convenience, the regulations concerning the Department's remediation requirements can be found at http://www.state.nj.us/dep/srp/regs/ .

Thank you for your cooperation in this matter. If you have any questions, call Gary Greulich at (973) 656-4465.

Sincerely,

David Oster, Section Chief
Bureau of Northern Field Operations

c: Danielle McGrath, Port Authority
Clerk, Newark
Local Health Department

APPENDIX C

DISPOSAL DOCUMENTATION FOR CAULKING

Request for Approval of TSCA
Self-Implementing Clean-up Plan of PCBs Hangar 14
Appendix C

Hangar 14
Newark Liberty International Airport
Newark, Essex County, NJ

Prepared by:
TRC Engineers Inc.
1601 Market Street,
Ste. 2555
Philadelphia, PA

Request for Approval of TSCA
Self-Implementing Clean-up Plan of PCBs Hangar 14
Appendix D

Hangar 14
Newark Liberty International Airport
Newark, Essex County, NJ

Prepared by:
TRC Engineers, Inc.
1601 Market Street, Ste. 2555
Philadelphia, PA

APPENDIX D

ASPHALT CONCRETE PAVING SPECIFICATIONS